National Aeronautics and
Space Administration

Health, Medicine and Biotechnology

Preservation of Liquid Biological Samples

Simple preservative technology that requires no refrigeration

The National Aeronautics and Space Administration (NASA) seeks interested parties for the commercial application and manufacturing for the preservation of liquid biological samples technology. This technology is a method for adding a patented preservative to a commercial off-the-shelf collection kit. This process coats the interior of the storage vile with the patented preservative chemical cocktail. For example, this additive in conjunction with centrifuging allows saliva samples to be stored at room temperature for up to six months. The preservative technology can be used with different biological liquid samples and in different clinical applications that require long-term storage of biological samples at ambient temperatures.

BENEFITS

- Ambient Storage: Allows for storage at room temperature
- Safe & Non-toxic: The chemicals are non-toxic compounds
- Long-Term Storage: Extends the shelf life of some samples to six months
- Flexible: Can be dispensed in solid, liquid and coated forms
- Self-contained: A closed-system that is ready for use in a physicians office

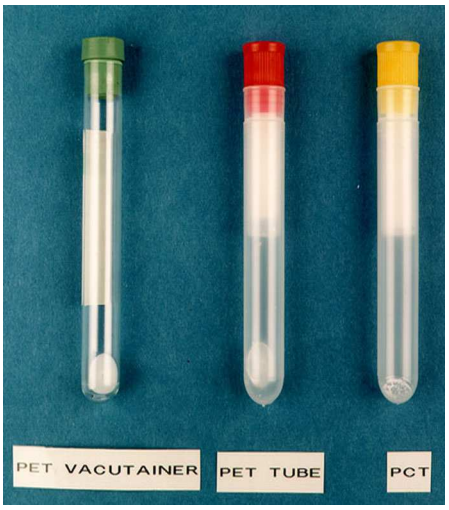
technology solution

THE TECHNOLOGY

This technology is a chemical cocktail intended for preservation of biological samples like blood and saliva. The present invention includes combining the liquid biological sample with the preservative comprising of sodium benzoate in an amount of at least 0.15 percent of the sample (weight/volume); and citric acid in an amount of at least 0.025 percent of the sample (weight/volume). The preservative can be dispensed in different platforms such as coated sample collection tubes like vaccutainers and Sarstedt saliva collection devices, coated preservative discs, compressed tablets or capsules, or in metered dispensers such as dropper bottles and syringes that can be used for preservation of larger volume samples.

This preservative method can be used with a variety of liquid biological samples including but not limited to saliva, tears, urine, blood, serum, plasma, sweat, feces, mucous, breast milk, bone marrow, and spino-cerebral fluid. The preservative is useful for routine and special clinical chemistry testing in adverse and remote site medical facilities, rural and disaster zone clinical operations, home healthcare diagnostics, pediatric and geriatric medicine and sports medicine operations. Therapeutic drug monitoring, hormone and biomarker research and therapeutics, AIDS diagnostic kits, and other immune deficiency biomarker assessments are other potential applications for this preservative.

1: Potential application for the technology in drug, alcohol, and DNA testing, among others.



2: The preservative technology adapts to commercial off-the-shelf bio-sampling units.

APPLICATIONS

The technology has several potential applications:

- Diagnostic Medicine
- Therapeutics
- Immune Disorders
- Drug, Alcohol, and DNA Testing

PUBLICATIONS

Patent No: 6,133,036; 6,716,392

More Information

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NASA's Technology Transfer Program pursues the widest possible applications of agency technology to benefit US citizens. Through partnerships and licensing agreements with industry, the program ensures that NASA's investments in pioneering research find secondary uses that benefit the economy, create jobs, and improve quality of life.

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